

# INTERNATIONAL SEARCH REPORT

International Application No. **PCT/GB 03/02422**

**A. CLASSIFICATION OF SUBJECT MATTER**  
**IPC 7 F16K17/38 F16K31/385**

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)  
**IPC 7 F16K**

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

| Category * | Citation of document, with indication, where appropriate, of the relevant passages  | Relevant to claim No. |
|------------|---|-----------------------|
| A          | GB 811 022 A (ALBERT JOLY)<br>25 March 1959 (1959-03-25)<br>page 1, line 62 -page 2, line 25; figure 1  | 1, 7, 14,<br>21, 24   |
| A          | FR 2 334 032 A (DUNLOP LTD)<br>1 July 1977 (1977-07-01)<br>page 4, line 35 -page 7, line 31; figures  | 1                     |
| A          | FR 1 147 137 A (SPENGLER RENE; ROTH ROGER)<br>19 November 1957 (1957-11-19)<br>page 1, right-hand column, line 16 -page<br>4, right-hand column, line 17; figures | 1, 2, 6               |
| A          | US 4 239 153 A (CADWELL RONALD G ET AL)<br>16 December 1980 (1980-12-16)<br>column 5, line 66 -column 6, line 3   | 1, 3                  |

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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- \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
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Date of the actual completion of the international search

**8 October 2003**

Date of mailing of the international search report

**15/10/2003**

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Information on patent family members

International Application No.

PCT/GB 03/02422

| Patent document<br>cited in search report |   | Publication<br>date | Patent family<br>member(s) | Publication<br>date |
|---|---|---------------------|----------------------------|---------------------|
| GB 811022                                 | A | 25-03-1959          | NONE                       |                     |
| FR 2334032                                | A | 01-07-1977          | FR 2334032 A1              | 01-07-1977          |
| FR 1147137                                | A | 19-11-1957          | NONE                       |                     |
| US 4239153                                | A | 16-12-1980          | AT 6314 T                  | 15-03-1984          |
|   |   |                     | AU 525542 B2               | 11-11-1982          |
|   |   |                     | AU 5035379 A               | 03-07-1980          |
|   |   |                     | BR 7906766 A               | 14-10-1980          |
|   |   |                     | CA 1148517 A1              | 21-06-1983          |
|   |   |                     | DE 2966691 D1              | 22-03-1984          |
|   |   |                     | EP 0013097 A2              | 09-07-1980          |
|   |   |                     | ES 484425 A1               | 16-04-1980          |
|   |   |                     | JP 55092910 A              | 14-07-1980          |
|   |   |                     | MX 147680 A                | 04-01-1983          |
|   |   |                     | PT 70293 A                 | 01-11-1979          |
|   |   |                     | TR 21494 A                 | 12-07-1984          |